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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-1475E
Plant ID No.:	083-00011
Applicant:	Southern West Virginia Asphalt, Inc.
Facility Name:	Elkins Plant #50
Location:	Kelly Mountain Road, Randolph County
NAICS Code:	324121
Application Type:	Modification
Received Date:	April 29, 2014
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$2,000.00
Date Received:	April 30, 2014
Complete Date:	June 17, 2014
Applicant Ad Date:	April 28, 2014
Newspaper:	*The Inter-Mountain*
UTM's:	Easting: 606.853 km Northing: 4,305.887 km Zone: 17
Description:	Applicant proposes to add a portable fractionated reclaimed asphalt pavement (FRAP) processing system. Various other changes will include updating tanks, inclusion of equipment and transfer points that were previously installed but not reflected in permits' Emission Units list.

DESCRIPTION OF PROCESS

Southern West Virginia Asphalt, Inc. (SWVA) is proposing to utilize a portable fractionated reclaimed asphalt pavement (FRAP) system at their Elkins, Plant #50 location. In addition, various changes to tanks, equipment and transfer points that were installed but never reflected in previous permits are to be corrected.

Existing Facility

Aggregates (including RAP) are brought to the asphalt plant stockpile area via truck and dumped into one of three stockpiles, OS1/N, OS2/N or OS3/N (TP1/MD). Aggregates other than RAP are unloaded from stockpiles OS1/N and OS2/N with an endloader and dumped into aggregate cold feed bins B1/PE through B4/PE (TP2/MD), then onto belt conveyor BC1/N (TP3/PE), which transports the aggregates to the rotary drum dryer RDD/APCD1 & APCD2 [1E] (TP4/PE). The dryer is vented to the inertial separator APCD1, which vents to the baghouse APCD2 [1e]. The rotary drum dryer RDD1 burner is fueled by either No.2 fuel oil from tank T3 or recycled oil from tank T4. Hot aggregates leave the rotary drum dryer and drop into bucket elevator BE1/FE (TP5/PE) that transfers the material to the asphalt batch tower.

The asphalt batch tower includes hot screens, hot bins, a weigh hopper, asphaltic cement weigh bucket, and a mixer (pug mill). The batch tower and the top end of the bucket elevator are fully enclosed and equipped with a scavenger collection system that vents to APCD1 and APCD2 [1E]. Hot aggregate is dropped from the bucket elevator onto the hot screens where it is classified into various grades and dropped into size-specific hot bins. Oversized aggregate is directed to a chute that drops the material to a

dump truck or to the ground (TP7/N). Sized RAP is transferred to the batch tower via belt conveyor BC4/N and dropped into a RAP hot bin. Aggregates and RAP are metered onto the weigh hopper before being dropped into the pug mill. Asphaltic cement from tank T1 and T2 is piped to the weigh bucket that dumps the material into the pug mill, where materials are mixed to form hot mix asphalt (HMA).

RAP is unloaded from raw RAP stockpile OS3/N with an endloader and dumped into RAP hopper BS6/PE (TP9/PE). From this hopper, the material drops onto conveyor belt BC2/N (TP10/PE), which transports the RAP to crusher CR1/FE (TP11/PE). The crushed RAP drops onto conveyor belt BC3/N (TP12/PE) that carries it to sized RAP stockpile OS4/N (TP13/MD). This portable RAP crushing system is powered by engine RAP-ENG1/N [3E]. This engine has powered the portable RAP crushing system since it was permitted, but was not included in previous permit applications.

Crushed RAP is unloaded from OS4/N with an endloader and dumped into RAP hopper BS7/PE (TP14/PE). The material leaves this bin and falls onto belt conveyor BC3A/N (TP14A/PE), which transports the material to screen SCR2/PE (TP14B/PE). Screen SCR2/PE is a 4'X10' single deck screen that is going to be replaced with a 4'X8' single deck screen. Changing the screen will not require changes to other portions of the RAP screening system. Oversized RAP leaves SCR2/PE and falls to a dump truck or to the ground (TP15A/PE). RAP passing through the screen falls onto belt conveyor BC4/N (TP15/PE), which transports the RAP to the batch tower hot bin.

HMA is transferred from the batch tower directly to trucks or to slat conveyor OT1/FE (TP8/PE), which transports the material to HMA silo BS8/FE or BS9/FE (TP17/PE). From the HMA silos, the material is loaded into trucks (TP18/PE).

Particles from APCD1 are transferred back to bucket elevator BE1/FE via a fixed chute (TP19/PE). Dust from APCD2 [1E] is transferred by a screw conveyor OT2/FE to baghouse dust silo BS10/FE (TP20/FE) and then to trucks via a fixed chute (TP21/PE).

Asphaltic cement tanks T1 and T2 are heated by asphalt heater AH1 [2E]. Existing tanks T1-T4 were replaced in 2013, following integrity testing of the existing tanks that indicated they needed to be replaced.

Fine aggregate and coarse aggregate are brought to the asphalt plant stockpile area from the Kelly Mountain Quarry stone processing area on mostly graveled roads. RAP, asphaltic cement, No. 2 fuel oil, used oil and HMA are transported on the paved haulroad between the asphalt plant area and Kelly Mountain Road. The haulroads, stockpile area and work areas around the plant are sprayed with a water truck as needed to control dust.

Proposed Modification

Southern West Virginia Asphalt (SWVA) will be using an ASTEC ProSizer 3100 (a portable FRAP processing system), to process RAP at the site into a high-quality, well-graded aggregate coated with asphaltic cement. The ASTEC ProSizer 3100 is equipped with a 200 tph double-deck screen and a 75 tph horizontal shaft impactor. The unit is powered by a John Deere 6068H 173 hp engine (F-ENG1/N [F-1E]). A portable radial stacker will be used with the system and will be powered by the same engine. The unit will be utilized for a short time before is is moved to another site and will return to the site as needed. The existing RAP system will remain at the site. FRAP will be fed into the asphalt plant via the existing RAP feed system and the RAP throughput of the asphalt plant will not be increased. This modification includes an increase in the maximum storage capacity of the raw and sized RAP stockpiles (OS3/N, OS4/N, OS4A/N and OS4B/N).

RAP from existing RAP stockpile (OS3/N) is loaded into the feed hopper F-H1/PE by an endloader [F-TP1/MD]. The feed bins feeds belt conveyor F-BC1/PE [F-TP2/FE], which transports the RAP to the double-deck screen F-S1/FE [F-TP3/PE]. Oversized material is fed to belt conveyor F-BC2/N [F-TP4/FE], which transports the material to the horizontal shaft impactor F-CR1/FE [F-TP5/FE]. The material drops from the crusher onto belt conveyor F-BC1/PE [F-TP7/FE], which transports it back to the screen. The crusher can also be arranged so that oversized material from the screen bypasses the crusher and returns to the existing raw RAP stockpile OS3/N [F-TP6/N].

The smaller fractions from the screen are discharged to belt conveyor F-BC3/N [F-TP8/PE] and F-BC4/N [F-TP10/PE]. F-BC3/N and F-BC4/N can transfer material directly to the sized RAP stockpiles OS4A/N [F-TP9/MD] and OS4B/N [F-TP11/MD] or to radial stacker F-RS1/N [F-TP9/MD or F-TP11/MD]. The radial stacker is only fed by one of the belt conveyors F-BC3/N or F-BC4/N at any given time; not both at the same time. Material from F-RS1/N is transferred to OS4A/N or OS4B/N [F-TP12/MD]. From stockpiles OS4A/N and OS4B/N, material are transferred via endloader to the existing stationary RAP hopper BS7 [TP-14/PE].

When FRAP is transferred to the existing RAP system, the flop gate on the screen is opened so the fractionated RAP passes through the screen and is not double-processed.

Portions of fine aggregate, coarse aggregate, RAP/FRAP, and asphaltic cement differ depending on the desired characteristics of the mix being made by an asphalt plant. Emissions calculations for this application utilize the maximum throughputs of aggregates, RAP/FRAP and asphaltic cement needed to make any type of mix. These calculations over-estimate the amounts of these materials that will actually be used but, ensure that all mix scenarios are accounted for.

See the following table for description, maximum throughput, control equipment, and maximum storage for all permitted equipment at the Whitman facility:

Table 1: Equipment Summary

Equipment ID No.	Emission Point ID	Description	Installation / Modification Date	Maximum Capacity		Control Device
FRAP System						
F-H1		FRAP Feed Hopper	2014	200 tons/hr	75,000 tons/yr	PE
F-BC1		FRAP Belt Conveyor	2014	200 tons/hr	75,000 tons/yr	PE
F-S1		FRAP Screen	2014	200 tons/hr	75,000 tons/yr	FE
F-BC2		FRAP Belt Conveyor	2014	75 tons/hr	30,000 tons/yr	N
F-CR1		FRAP Crusher	2014	75 tons/hr	30,000 tons/yr	FE
F-BC3		FRAP Belt Conveyor	2014	200 tons/hr	75,000 tons/yr	N
F-BC4		FRAP Belt Conveyor	2014	200 tons/hr	75,000 tons/yr	N
F-RS1		FRAP Radial Stacker	2014	200 tons/hr	75,000 tons/yr	N
F-ENG1	F-1E	FRAP Engine (John Deere 6068HFC93A-mfg. date 5/17/2013, EPA Interim Tier 4)	2014	9.28 gal/hr	173 hp @ 2,400 rpm	N
RAP System						
OS3		RAP Stockpile	2010 [5]	75,000 tons	75,000 tons/yr	N
BS6		RAP Hopper	2010	100 tons/hr	75,000 tons/yr	PE
BC2		RAP Belt Conveyor	2010	100 tons/hr	75,000 tons/yr	N
CR1		RAP Crusher	2010	100 tons/hr	75,000 tons/yr	FE
BC-3		RAP Belt Conveyor	2010	100 tons/hr	75,000 tons/yr	N
OS4, 4A & 4B		Sized RAP Stockpiles	2010 [5]	75,000 tons	75,000 tons/yr	N
RAP-ENG1	3E	RAP Engine	2010	16.60 gal/hr		N
BS7		RAP Hopper	2010	100 tons/hr	75,000 tons/yr	PE
BC3A		RAP Belt Conveyor	2010	100 tons/hr	75,000 tons/yr	N
SCR2		RAP Screen	2010 [6]	100 tons/hr	75,000 tons/yr	PE
BC4		RAP Belt Conveyor	2010	100 tons/hr	75,000 tons/yr	N
HMA System						
OS1		Cold Aggregate Stockpile – L/S 467	1992 [2]	15,000 tons	206,800 tons/yr	N
OS2		Cold Aggregate Stockpile – L/S 8	1992 [2]	15,000 tons		N
BS1		Cold Feed Bin	1992 [2]	20 tons	206,800 tons/yr	PE
BS2		Cold Feed Bin	1992 [2]	20 tons		PE
BS3		Cold Feed Bin	1992 [2]	20 tons		PE
BS4		Cold Feed Bin	1992 [2]	20 tons		PE
BC1		Belt Conveyor	1992 [2]	200 tons/hr	206,800 tons/yr	N
RDD1	1E	H & B Custom Built H-60 (Hauck SJ-360 Burner) 75.6mmBTU/hr	1992 [3]	200 tons/hr	220,000 tons/yr	APCD1 & APCD2

Equipment ID No.	Emission Point ID	Description	Installation / Modification Date	Maximum Capacity		Control Device
BE1	1E	Bucket Elevator	1992 [2]	200 tons/hr	206,800 tons/yr	APCD1 & APCD2
Batch Tower (SC1 & BS5)		Batch Tower including Hot Screen and Hot Bins	1992 [2]	200 tons/hr	220,000 tons/yr	APCD1 & APCD2
OT1		HMA Slat Conveyor	1992 [2]	200 tons/hr	220,000 tons/yr	FE
BS8		HMA Storage Silo	1992 [2]	200 tons	220,000 tons/yr	FE
BS9		HMA Storage Silo	1992 [2]	200 tons		FE
OT2		Baghouse Screw Conveyor	1992 [2]	1 ton/hr	1,220 tons/yr	FE
BS10		Baghouse Dust Silo	1992 [2]	20 tons	1,220 tons/yr	FE
Tanks						
T-1		Asphalt Storage Tank	1992 [4]	20,000 gal	3,180,723 gal/yr	N
T-2		Asphalt Storage Tank	1992 [4]	20,000 gal		N
T-3		Fuel Storage Tank – #2 fuel oil	1992 [4]	10,000 gal	594,000 gal/yr	N
T-4		Fuel Storage Tank – Used Oil	1992 [4]	10,000 gal	589,790 gal/yr	N
AH-1	2E	Asphalt Heater – #2 Fuel Oil	1992 [2]	9 gal/hr; 2,200 hrs./yr	modified 1999	N

[1] FE - Full Enclosure; PE - Partial Enclosure; N – None; APCD1 – Inertial Separator; APCD2 – Baghouse
[2] Modified in 1999
[3] Modified in 2001/2002
[4] New in 2013
[5] Modified size 2014
[6] Replace 2014

SITE INSPECTION

Karl Dettinger of the Compliance and Enforcement section of the Eastern Panhandle Regional Office performed a site inspection on July 16, 2012. Emissions of fugitive dust from the operations at the facility were minimal. Visible emission observations were performed on the 3 crushers that were operating at the time of the inspection (C1, C4, and C5). All were within the allowable opacity limits of 40 CFR 60 Subpart OOO (the limit is 15% opacity). There were some minor recordkeeping issues, which was discussed with the site foreman.

Directions in application: US-119 South to Old Hwy 119 exit for 2.1 miles. Turn right (south) onto CR-9/01 (Whitman Creek Rd.) For 1.9 miles. Plant entrance is located on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The Whitman facility will operate at a maximum production rate of 400 tons per hour and 300,000 tons per year of asphalt. Emissions were calculated by Potesta & Associates, Inc. on behalf of Southern West Virginia, Asphalt, Inc. for the FRAP addition only. Emissions for the various other components/processes/equipment were obtained from the previous application and subsequent permit (R13-0281B). Please see the following descriptions and tables for calculation explanations:

RAP Crushing and Screening

WVDAQ G40-C Emissions Worksheet were utilized to calculate the RAP crushing and screening emissions. Crusher CR1 will be fully enclosed and screen SCR2 is partially enclosed. The facility will be limited to a process rate of 100 tons per hour and 75,000 tons per year of RAP.

Table 2a: Existing RAP Crushing/Screening

RAP Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
CR1	Total Particulate Matter	0.04	0.02
	PM_{10}	0.02	0.01
SCR2	Total Particulate Matter	1.25	0.47
	PM_{10}	0.44	0.17
Total RAP Crushing/Screening	Total Particulate Matter	1.29	0.49
	PM_{10}	0.46	0.18

Table 2b: Existing RAP Engine Emissions

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
RAP-ENG1 (Emission Point 3E)	Carbon Monoxide	2.18	0.82
	Nitrogen Oxides	10.10	3.79
	Sulfur Dioxide	0.66	0.25
	Total Particulate Matter	0.71	0.27
	PM_{10}	0.71	0.27
	Volatile Organic Compounds	0.82	0.31
	Formaldehyde	0.0027	0.0010
	TOTAL HAPs	0.0087	0.003

*Emission factors from AP-42 Table 3.3-1(Criteria Pollutants) and Table 3.3-2 (HAPS).

Materials Handling

WVDAQ G40-C Emissions Worksheet. May 06, 2011were utilized to calculate the facility transfer point emissions. The facility will be limited to a process rate of 200 tons per hour and 220,000 tons per year of HMA production.

Table 2c: Materials Handling

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
Transfer Points	Total Particulate Matter	1.62	0.78
	PM_{10}	0.78	0.38

Silo Filling and Plant Loadout

Silo filling and plant loadout emissions were calculated using emission factors from AP-42 Table 11.1-14. (Hot Mix Asphalt Plants: Predictive Emission Factor Equations for Load-Out and Silo Filling Operations) and Table 11.1-16 (Hot Mix Asphalt Plants: Speciation Profiles for Load-Out, Silo Filling, and Asphalt Storage Emissions - Organic Volatile-Based Compounds).

Table 2d: Silo Filling and Plant Loadout

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
Silo Filling	Total Particulate Matter	0.04	0.02
	PM_{10}	0.01	0.003
	VOC	2.44	1.34
	CO	0.24	0.13
	Total HAPs*	0.032	0.017
Plant Loadout	Total Particulate Matter	0.03	0.02
	PM_{10}	0.01	0.003
	VOC	0.78	0.43
	CO	0.27	0.15
	Total HAPs*	0.013	0.007

* HAPs for Silo Filling include Benzene, Ethylbenzene, Toluene, Xylene, and Formaldehyde

Stockpiles

Fugitive emissions from stockpiles were calculated using emission factors from AP-42 Section 11.2.3 (Fugitive Emissions, equation #2).

Table 2e: Fugitive Emissions – Stockpiles

Fugitive Emissions Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
Stockpiles (OS1 through OS4B)	Total Particulate Matter	0.05	0.07
	PM_{10}	0.03	0.03

Haulroads

Emission factors for haulroads were taken from AP-42 Section 13.2 (Miscellaneous Sources: Paved Roads and Unpaved Roads). Site haulroads will consist of both paved and unpaved roads.

Table 2f: Fugitive Emissions – Haulroads

Fugitive Emissions Source	*Pollutant*	*Maximum Hourly Emissions (lb/hr)*	*Maximum Annual Emissions (tons/yr)*
Paved Haulroads	*Total Particulate Matter*	*9.08*	*3.86*
	PM_{10}	*1.82*	*0.77*
Unpaved Haulroads	*Total Particulate Matter*	*10.47*	*7.63*
	PM_{10}	*3.09*	*2.26*
Total Haulroads	*Total Particulate Matter*	*19.55*	*11.49*
	PM_{10}	*4.91*	*3.03*

Dryer, Hot Elevator and Batch Tower

The rotary drum dryer (RDD1) is vented directly to the inertial separator (APCD1) which vents to the baghouse (APCD2). The batch tower and the top end of the bucket elevator (BE1) are equipped with a scavenger collection system that also vents to APCD1 and APCD2. The baghouse is a 1987 ASTEC Pulse Jet with a total cloth area of 10,892.4 ft^2.

Table 2g: Dryer, Hot Elevator and Batch Tower

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
RDD1 (Emission Point 1E)	Carbon Monoxide	80.00	44.00
	Nitrogen Oxides	24.00	13.20
	Sulfur Dioxide	17.60	9.68
	Total Particulate Matter	22.28	12.25
	PM_{10}	5.12	2.82
	Volatile Organic Compounds	7.20	3.96
	Acetaldehyde	0.06	0.04
	Benzene	0.06	0.03
	Ethylbenzene	0.44	0.24
	Formaldehyde	0.15	0.08
	Quinone	0.05	0.03
	Toluene	0.20	0.11
	Xylene	0.54	0.30
	PAH HAPs Total	0.05	0.03
	Non-PAH HAPs Total	1.50	0.83
	Total VOC HAPs	1.55	0.86
	Metal HAPs Total	0.01	0.01
	TOTAL HAPs	1.56	0.87

Asphalt Heater

Annual emissions were calculated assuming the heater will run (2,200 hours per year) and use 9 gal/hr. Emission factors for the calculations were taken from G20-B Application Instructions, March 2009.

Table 2h: Asphalt Heater

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
AH1 (Emission Point 2E)	Carbon Monoxide	0.045	0.05
	Nitrogen Oxides	0.18	0.20
	Sulfur Dioxide	0.192	0.21
	Total Particulate Matter	0.018	0.02
	PM_{10}	0.010	0.01
	Volatile Organic Compounds	0.003	0.003
	Total HAPs	0.05	0.06

Portable Fractionated Reclaimed Asphalt Pavement (FRAP) Processing Unit

The Prosizer 3100 is a portable plant that processes milled RAP. It consists of a horizontal shaft impactor, a double deck screen, four (4) belt conveyors, a radial stacker, a feed hopper/bin, and an engine for electrical and hydraulic power. The plant is capable of 200 tons per hour (tph) and will be limited to 75,000 tons per year (tpy).

Table 3a: Engine Emissions (Prosizer 3100)

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
F-ENG1 (Emission Point F-1E)	Carbon Monoxide	1.22	0.24
	Nitrogen Oxides	5.65	1.13
	Sulfur Dioxide	0.37	0.07
	Total Particulate Matter	0.40	0.08
	PM_{10}	0.40	0.08
	Volatile Organic Compounds	0.46	0.09
	Formaldehyde	0.0015	0.0003
	TOTAL HAPs	0.0049	0.001

*Emission factors from AP-42 Table 3.3-1(Criteria Pollutants) and Table 3.3-2 (HAPS).

Table 3b: Total Process Associated Emissions (Prosizer 3100)

Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
FRAP (Prosizer 3100)	Carbon Monoxide	1.22	0.24
	Nitrogen Oxides	5.65	1.13
	Sulfur Dioxide	0.37	0.07
	Total Particulate Matter	1.43	0.38
	PM_{10}	0.77	0.16
	Volatile Organic Compounds	0.46	0.09
	Formaldehyde	0.0015	0.0003
	TOTAL HAPs	0.0049	0.001

Tanks

Tanks T1 (20,000 gal) and T2 (20,000 gal) will be utilized to store asphaltic cement. Tank T3 (10,000 gal) will store diesel fuel for usage in mobile equipment (endloaders, material transport trucks, and company vehicles) and T4 (10,000 gal) will store used oil.

SUMMARY OF EMISSIONS:

Table 4: Proposed Facility Emissions (R13-1475E)

Emission Type	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/yr)
Total Particulate Matter	47.67	25.79
Fugitive (Haulroads & Stockpiles)	19.60	11.56
PM_{10}	13.23	6.97
Fugitive (Haulroads & Stockpiles)	4.94	3.06
$PM_{2.5}$	3.44	1.58
Fugitive (Haulroads & Stockpiles)	0.77	0.43
VOC	11.71	6.14
SO_2	18.41	10.21
NOx	39.93	18.32
CO	83.96	45.39
Acetaldehyde	0.06	0.04
Benzene	0.07	0.04
Ethylbenzene	0.45	0.25
Toluene	0.21	0.12
Xylene	0.56	0.32
Formaldehyde	0.18	0.10
Total HAPs	1.67	0.95

REGULATORY APPLICABILITY

PSD has no applicability to the proposed facility. The proposed modification of a hot mix asphalt plant is subject to the following state and federal rules:

45CSR2 To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

The purpose of this rule is to establish limitations for smoke and particulate matter which are discharged from fuel burning units. Per this rule, Section 2.14 defines an indirect heat exchanger as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. Section 2.10 defines a fuel burning unit as any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. The facility is exempt from sections 4, 5, 6, 8, and 9 because the asphalt heater will not produce more than six hundred (600) pounds per hour of particulate matter to be discharged into the open air. The facility will be subject to the opacity requirements in this rule, which is 10% opacity based on a six minute block average.

45CSR3 To Prevent and Control Air Pollution from the Operation of Hot Mix Asphalt Plants

The purpose of this rule is to establish emission limitations for hot mix asphalt plants and the plant property. The facility is subject to this rule because it meets the definition of Hot Mix Asphalt Plant as found in Section 2.14. The facility must meet visible emission limits of 40% opacity during start-up or shutdown and 20% opacity during operations of any fuel burning equipment. The facility shall be operated and maintained in a manner as to prevent emission of particulate matter from any point other than a stack outlet. The facility will utilize water sprays, minimized drop heights, partial enclosures, full enclosures, and a baghouse to minimize particulate emissions. Opacity monitoring, recordkeeping, and reporting requirements are included in permit R13-1475E.

45CSR7 To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associate Operations

The purpose of this rule is to prevent and control particulate matter air pollution from manufacturing processes and associated operations. The facility is subject to the requirements of this rule because it meets the definition of "Manufacturing Process" found in Section 2.20 of this rule. The facility will need to be in compliance with Subsection 3.1 – no greater than 20% opacity (opacity monitoring, recordkeeping, and reporting requirements are included in permit 13-1475E); Subsection 3.7 – no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have a full enclosure (hot mix asphalt storage silos BS8 and BS9 will be fully enclosed); Subsection 4.1 – PM emissions shall not exceed those under Table 45-7A (see paragraph below); Subsection 5.1 – manufacturing process and storage structures must be equipped with a system to minimize emissions (separator/baghouse APCD1/APCD2 controls emissions from the hot mix asphalt plant RDD1); Subsection 5.2 – minimize PM emissions from haulroads and plant premises (water sprays will be utilized to control these emissions).

According to Table 45-7A, for a type 'a' source with a maximum process weight rate of 400,000 lb/hr, the maximum allowable emission rate is 43 lb/hr of particulate matter. The proposed maximum point source emission rate at the facility is 28.06 lb/hr of particulate matter according to calculated emissions in permit application R13-1475E.

45CSR10 To Prevent and Control Air Pollution from Emissions of Sulfur Oxides

The purpose of this rule is to prevent and control air pollution from the emission of sulfur oxides. Per this rule, Section 2.9 defines an indirect heat exchanger as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. Section 2.8 defines a fuel burning unit as any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or

power by indirect heat transfer. This facility is exempt from sections 3 and 6 because the source operation will have the potential to emit less than 500 pounds per year of sulfur oxides. According to section 4.1., sulfur dioxide concentrations must fall below 2,000 parts per million by volume (included in permit as 4.1.3.(e).

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

The purpose of this rule is to set forth the procedures for stationary source reporting, and the criteria for obtaining a permit to construct and operate a new stationary source which is not a major stationary source, to modify a non-major stationary source, to make modifications which are not major modifications to an existing major stationary source and to relocate non-major stationary sources within the state of West Virginia.

The applicant is applying for a Rule 13 modification permit for the Whitman facility pursuant to Section 2.24.e. The facility is subject to the following sections of this rule: reporting requirements, requirements for modifications of stationary sources, demonstrating compliance with stationary sources, public review procedures, and permit application fees. The facility will demonstrate compliance by following all the applicable rules and regulations that apply to the facility. They will also follow the terms and conditions set forth in permit R13-1475E. The permittee published a Class I legal advertisement in the *The Inter-Mountain* on April 28, 2014 and submitted an application fee of $2,000.00, which includes $1,000.00 NSPS fees.

45CSR16 Standards of Performance for New Stationary Sources

This rule establishes and adopts standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act, as amended (CAA). The facility is subject to 40cfr60 Subparts I, OOO and IIII.

40CFR60 Subpart I: Standards of Performance for Hot Mix Asphalt Facilities

The facility is subject to this Subpart because it meets the definition of "hot mix asphalt facility" as defined in 60.91(a) – hot mix asphalt facility means any facility used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements and consisting of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems. Permit 13-1475E requires opacity testing, which will show opacity values of 20% or under.

40CFR60 Subpart OOO: Standards of Performance for Nonmetallic Minerals Processing Plant

In addition to nonmetallic minerals processing plants, provisions of this subpart also apply to crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart. Therefore, the crushers, screens, conveyors and bins associated with RAP processing are subject to this subpart. The facility shall be in compliance with 60.672 (b) no greater than 7% opacity from any transfer point on belt conveyors or from any other affected facility (as defined in 60.670 and 60.671) and no greater than 12% opacity from any crusher when the particulate matter control methods and devices (all control methods shown in equipment table) proposed within application R13-1475E are in operation.

45CFR60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Southern West Virginia Asphalt, Inc. is subject to this subpart because F-ENG1 was manufactured after April 1, 2006. The engine emissions for F-ENG1 [F-1E, John Deere

6068HFC93A, 173 hp CI RICE, mfg.date of 5/17/2013] is EPA Interim Tier IV Certified, Certificate Number: DJDXL06.8210-019.

40CFR63 *Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Southern West Virginia Asphalt, Inc. is subject to 40CFR63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because RAP-ENG1 and F-ENG1 are considered a new area source of HAPs since it will be constructed on or after June 12, 2006, however, the only requirements that apply are those required under 45CFR60 Subpart IIII.

The proposed modification of Southern West Virginia Asphalt, Inc.'s existing aggregate processing facility is not subject to the following state and federal rules:

45CSR14 *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration*

In accordance with 45CSR14 Major Source Determination, the proposed additions and aggregate processing facilities are not listed in Table 1. The facilities will have a total potential to emit 28.06 TPY of a regulated air pollutant (PM), not including fugitive emissions, which is less than the 45CSR14 threshold of 250 TPY. This facility is not listed in Table 2, and so fugitive emissions are not included when determining source applicability. Therefore, the proposed construction is not subject to the requirements set forth within 45CSR14.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Acetaldehyde:
Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is ubiquitous in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on inadequate human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters.

Benzene:
Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

Ethyl Benzene:
Ethyl benzene is mainly used in the manufacturing of styrene. Acute (short-term) exposure to ethyl benzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects, such as dizziness. Chronic (long-term) exposure to ethyl benzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethyl benzene. Limited information is available on the carcinogenic effects of ethyl benzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethyl benzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethyl benzene as a Group D, not classifiable as to human carcinogenicity.

Formaldehyde:
Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

Toluene:
The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. `Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

Xylene:
Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility and the limit of the proposed modification. This facility is located in Randolph County, West Virginia, which is designated as attainment for PM2.5 (particulate matter less than 2.5 microns in diameter). The facility is a minor source and not subject to 45CSR14.

MONITORING OF OPERATIONS

Southern West Virginia Asphalt, Inc. shall monitor RAP production throughput (for CR1, SCR2, F-CR1 and F-S1), HMA throughput (RDD1), dryer fuel usage (for RDD1), heater #2Fuel Oil usage (for AH1), #2 Fuel Oil usage for (F-ENG1)and opacity checks. The following language incorporates these requirements into the permit:

4.2.1. For the purpose of determining compliance with RAP maximum throughput and emission limits set forth in 4.1.1., the permittee shall monitor RAP throughput and maintain certified daily records. An example form is included as Appendix A. Such records shall be retained onsite by the permittee for at least five (5) years. Certified records shall be made available to the Director or his duly authorized representative upon request.

4.2.2. For the purpose of determining compliance with counterflow drum mixer maximum throughput and emission limits set forth in 4.1.2., the permittee shall monitor HMA throughput and maintain certified daily records. An example form is included as

Appendix A. Such records shall be retained onsite by the permittee for at least five (5) years. Certified records shall be made available to the Director or his duly authorized representative upon request.

4.2.3. For the purpose of determining compliance with the counterflow drum mixer fuel usage and emission limits set forth in 4.1.3., the permittee shall maintain monthly records of the natural gas, No. 2 fuel oil, and used oil consumed in the dryer utilizing the form identified as Appendix B. Certified records shall be made available to the Director or his duly authorized representative upon request.

4.2.4. For the purpose of determining compliance with the asphalt heater maximum #2 Fuel Oil usage and emission limits set forth in 4.1.3., the permittee shall maintain monthly records of the #2 Fuel Oil consumed in the asphalt heater utilizing the form identified as Appendix C. Certified records shall be made available to the Director or his duly authorized representative upon request.

4.2.5. For the purpose of determining compliance with the opacity limits set forth in 4.1.1. and 4.1.2., the permittee shall conduct visible emission checks and / or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

a. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

b. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stack, transfer point, fugitive emission source, etc.) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

c. If visible emissions are present at a source(s) for two (2) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

CHANGES TO PERMIT R13-1475D

The following equipment are proposed in the 13-1475E permit modification application:

- New FRAP hopper/bin F-H1.
- New FRAP belt conveyors F-BC1 through F-BC4.
- New FRAP horizontal shaft impacter F-CR1.
- New FRAP double deck screen F-S1.
- New FRAP radial stacker F-RS1.
- One (1) Diesel Engine (2013 John Deere, 173hp, Interim Tier IV Certification).
- One (1) Diesel Engine (1998 John Deere Model 6125, 325 hp, Tier I Certification).
- Various equipment replaced or modified as identified in the Equipment Summary.

RECOMMENDATION TO DIRECTOR

The information contained in the permit application R13-1475E indicates that compliance with all applicable state rules and federal regulations should be achieved when all proposed control methods are in operation. Therefore, the granting of a permit to Southern West Virginia Asphalt, Inc. for the modification of a hot mix asphalt facility located in Elkins, Randolph County, West Virginia, is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

June 17, 2014

Date